

**TABLE 2.—Number of Persons Covered by the Various Forms of Voluntary Health Insurance Coverage in California, 1960 and 1961, and the Comparative Increase in Coverage**

Form of Coverage	1960	1961	Absolute Increase	Per Cent Increase
Hospital.....	10,752,000	11,170,000	418,000	3.8
Surgical.....	10,270,000	10,712,000	442,000	4.3
Regular Medical.....	8,559,000	9,065,000	506,000	5.9

sire voluntary health insurance coverage, a large number and a significant per cent of those not coming under voluntary health insurance coverage are provided with health care services, or have such services financed for them. These would include—but are not limited to—persons eligible for care through the U. S. Public Health Service, such as American Seamen, Coast Guard Personnel and their dependents; those persons eligible for care as veterans whose care in many cases is for nonservice connected conditions; persons who receive care under vocational rehabilitation; people eligible for care under California's Public Assistance Medical Care Program; Armed Forces Personnel and dependents covered in the Medicare Program; the

services provided under the Crippled Children's Program administered by the State Department of Public Health; and last but not least, persons who have no other type of coverage but who are covered by Disability Insurance Hospitalization Benefits, administered by the State Department of Employment.

It is estimated that between 40 per cent to 50 per cent of the remaining five million persons in California not covered by voluntary health insurance have some other type of health coverage. Thus a higher per cent of the population in California has health care service programs available to them than is reflected just in the enrollment under voluntary health insurance programs.

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## Gynecological Cytology

### The Use of Fluorescence Technique

FOR THE PURPOSE of diagnostic exfoliative cytology in the detection of uterine cancer, the acridine orange fluorescence technique is inferior to the Papanicolaou procedure and is not recommended. Validity of the Papanicolaou method—although more time consuming and technically more exacting—has been proven by the high degree of correlation between results from its use and histologic examination of tissues concerned. Thus, the Papanicolaou procedure has become the established method of choice in the staining of exfoliated cells and is now widely used by those who are knowledgeable and competent in the field. It is to be emphasized that thoroughly trained cytotechnicians and pathologists are essential. No other method has proven as satisfactory for the detection of atypical and malignant cells or as versatile for other purposes, e.g., the evaluation of hormonal effects, the identification of trichomonads, and an assessment of the inflammatory component as well as quality of the smears submitted. The acridine orange fluorescence technique is an example of other methods that have been studied. Initially, owing to its seeming simplicity and potential for "saving time," it aroused enthusiasm. Subsequently, however, there has been

an ever increasing number of unfavorable reports<sup>1,2,3,4</sup> based upon comparative critical studies—regarding its efficacy as a reliable rapid screening method.

The acridine orange fluorescence technique is based upon the fact that malignant cells may contain high amounts of nucleic acid which stains with acridine orange and may fluoresce brilliantly when examined microscopically under ultraviolet light.

Acridine orange is a basic fluorochrome which allows for differentiation of the two nucleic acids in fixed cytologic preparations: ribose nucleic acid (RNA) in the cytoplasm and nucleolus in shades of metachromatic colors ranging from brick to orange and red, and desoxyribose nucleic acid (DNA) for the nucleus staining in shades of green and yellow. An early review of acridine orange staining and its theory was presented by Wolf.<sup>6</sup>

The cytoplasm of growing cells stains in shades of orange-red with a varying intensity according to the growth gradient and cellular maturation. The diagnostic classification of cells is based on a combination of cytoplasmic and nuclear chemical changes (RNA and DNA content). Hopefully, the enthusiastic promoters of this technique envisaged that a simultaneous evaluation of morphological abnormalities would be possible (encompassing the range of variations found in the variable cell population).

Increased cytoplasmic basophilia (increased RNA concentration) is by no means a specific expression

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of malignancy, but of growth per se. Proliferating cells from atypical cervical epithelia often have apparently the same degree of cytoplasmic basophilia as malignant proliferating cells.<sup>5</sup> Therefore, no basic dye (including acridine orange) which detects basophilia can be a "specific cancer stain." It is to be noted that degenerating or acidophilic malignant cells stain in green color and do not give any "red warning signal."

Again, it is to be emphasized that the degree of fluorescence is related to the degree of cellular multiplication. For this reason, negative findings are possible in those malignancies where mitosis is slight.

Various factors obscure the microscopic field and the sensitivity with which the observer is able to detect cellular alterations that may be pertinent. Hemoglobin quenches fluorescence. Accordingly, the sharpness of the microscopic field may be obscured by the presence of red blood corpuscles, especially if present in considerable numbers. Large numbers of neutrophils (leukocytes) and bacteria mask the appearance of hyperchromatic nuclei as well as the appearance of acidophilic cells with pyknotic nuclei, thus making difficult the precise identification of cellular elements. This "masking" is also applicable to cells with green cytoplasm (poor in RNA) which may be encountered in normal as well as malignant smears.<sup>6</sup>

As more and more reports of qualified investigators become available, it is apparent that use of acridine orange fluorescence technique results in an excessively high number of incorrect diagnoses, positive as well as negative. This factor precludes its use in proper patient care. Qualified investigators, for example, have reported a persistent false positive range as high as 35 per cent<sup>1,2,3,4</sup> and a false negative rate of 10 per cent and higher. By contrast, use of the standard Papanicolaou procedure by qualified pathologists assisted by well trained cytotechnicians results in a false positive and a false negative rate of less than 1 per cent.

Use of the acridine orange fluorescence technique as a "pre-screening procedure," preliminary to restaining and study of "atypical" smears by the Papanicolaou procedure is wasteful of time and for reasons stated above does not circumvent completely factors which lead to false positive and false negative interpretations. Thus, the technique for "pre-screening" is not only wasteful but unsafe. Finally, reliance on the fluorescence technique alone is not on behalf of the best interests of the potential cancer patient. It will lead only to confusion in cancer education and control. In conclusion the acridine orange fluorescence technique is less accurate than the Papanicolaou procedure, cannot be depended

upon as a safe diagnostic procedure and cannot be recommended for independent use in the cytodiagnosis of gynecologic cancer.

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## The A.M.A. Congress on Mental Illness and Health

CHICAGO, OCTOBER 1962

THE AMERICAN MEDICAL ASSOCIATION, recognizing mental illness as "America's most pressing and complex health problem," declared that any effective program to combat it must be ambitious and comprehensive. A congress sponsored by the American Medical Association with the cooperation of the American Psychiatric Association and the support of the National Association of Mental Health had as its purpose the implementation of the broad new mental health program developed and adapted by its Board of Trustees. The American Medical Association's preliminary conference on Mental Illness and Health drew heavily upon such sources as "The Action for Mental Health" and meetings that were held with the chairmen of the committees on mental health of the state medical association. About two thousand people attended this conference, representing all of our 50 states. The steering committee from California, chaired by the chairman of its Committee on Mental Health, and including the President of the California Medical Association, met with about 75 representatives of medicine and ancillary fields of interest from various parts of our state.

This four-day congress devoted its planning to specific activities necessary to implement the American Medical Association's mental health program. Material developed from these meetings emphasized problems of special interest, and attempted to determine priorities for subsequent action at regional, state and local levels.